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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,345	07/26/2001	Li Jia Hao	MR2349-358/DIV2	5663

7590 04/21/2005  
YI-WEN TSENG  
4331 STEVENS BATTLE LANE  
FAIRFAX, VA 22033

EXAMINER

CIRIC, LJILJANA V

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/912,345	<b>Applicant(s)</b> HAO, LI JIA	
	<b>Examiner</b> Ljiljana (Lil) V. Ciric <i>AVC</i>	<b>Art Unit</b> 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,5-10 and 14-16 is/are pending in the application.
- 4a) Of the above claim(s) none is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-7,9,10 and 14-16 is/are rejected.
- 7) ☒ Claim(s) 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

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## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office action is in response to the reply filed on January 27, 2005.
2. Claims 1, 3, 5 through 10, and 14 through 16 remain in the application, all as amended to correct informalities.
3. The indicated allowability of claims 1, 3, 5 through 7, 9, 10, and 14 through 16 is hereby withdrawn in view of the newly discovered reference to Kenji Okayasu [JP 1-167594]. Rejections based on the newly discovered reference follow.

### ***Drawings***

4. The drawings were received on January 27, 2005. These drawings are hereby approved.

### ***Specification***

5. Receipt and entry of the amended abstract is hereby acknowledged.

### ***Claim Objections***

6. Claims 1, 3, 5 through 10, and 14 through 16 are objected to because of the following informalities, for example: the semi-colon (;) immediately following each of "a heat conducting block" [claim 1, line 3] and "with the loop" [claim 1, line 5] should each be replaced with a comma [,] for improved grammatical correctness and readability; "to" should be inserted immediately following "adjacent" [claim 1, line 5] for improved grammatical correctness; "with" should be inserted immediately preceding "a radiator" [claim 1, line 7]; "installed" [claim 3, line 2] should be replaced with "equipped" for improved idiomatic correctness; "a" should be replaced with "the" immediately preceding "bubble generator" [claim 9, line 2] for improved readability and clarity; and, "a" should be replaced with "the" immediately preceding "guide region" [claim 10, line 2]. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Upon reconsideration, it is not clear which particular structural configuration(s) are encompassed either by the limitations “wherein the plurality of loops are *symmetric with respect to left and right sides of the heat absorbing source*” [claim 15, lines 2-3] or by the limitations “wherein the plurality of loops are *alternately arranged with respect to left and right sides of the heat absorbing source*” [claim 16, lines 2-3].

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. As best can be understood in view of the indefiniteness of claims 15 and 16, claims 1, 3, 9, 10, and 14 through 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kenji Okayasu [JP 1-167594].

Kenji Okayasu discloses a bubble cycling heat exchanger essentially as claimed, including, for example: at least one closed fluid loop having a liquid therein as shown in Figures 1 and 3, for example; the at least one closed fluid loop being in thermal contact with a heat absorbing source portion of heat pipe 1 through a heat conducting block 5; the loop having a bubble generator 6 formed within the heat conducting block 5 for generating bubbles in the liquid; an externally mounted expanding area 12 or 29 installed adjacent to and in fluid communication with the loop; and, the loop being formed with a guide region 8 and with a radiator 13, the radiator 13 being equipped with a fin set. Figure 3 specifically shows a plurality of closed fluid loops disposed in parallel and in thermal contact with the heat absorbing source

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portion of heat pipe 1.

The reference thus reads on the claims.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 5 through 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenji Okayasu [JP 1-167594].

As noted in greater detail above, Kenji Okayasu [JP 1-167594] discloses a bubble cycling heat exchanger essentially as claimed, except for not disclosing a blower connected to or above the top surface of the fin set associated with the radiator as recited in claims 5 through 7 of the instant application.

Nevertheless, it is notoriously well-known in the art that providing forced convection (such as via an attached or adjacent blower) to the fin set of a heat radiator will enhance heat transfer from the radiator.

Thus, it would have been obvious to one skilled in the art at the time of invention to modify the bubble cycling heat exchanger of Kenji Okayasu by adding an adjacent or attached blower in order to blow air over the fin set and thus increase the heat transfer therefrom via forced convection.

***Double Patenting***

13. Applicant is advised that should claim 6 be found allowable, claim 7 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

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*Allowable Subject Matter*

14. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*


15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ljiljana (Lil) V. Ciric, whose telephone number is (571) 272-4909.

While she works a flexible schedule that varies from day to day and from week to week, Examiner Ciric may generally be reached at the Office during the work week between the hours of 10 a.m. and 6 p.m. ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene, can be reached at (571) 272-4930.

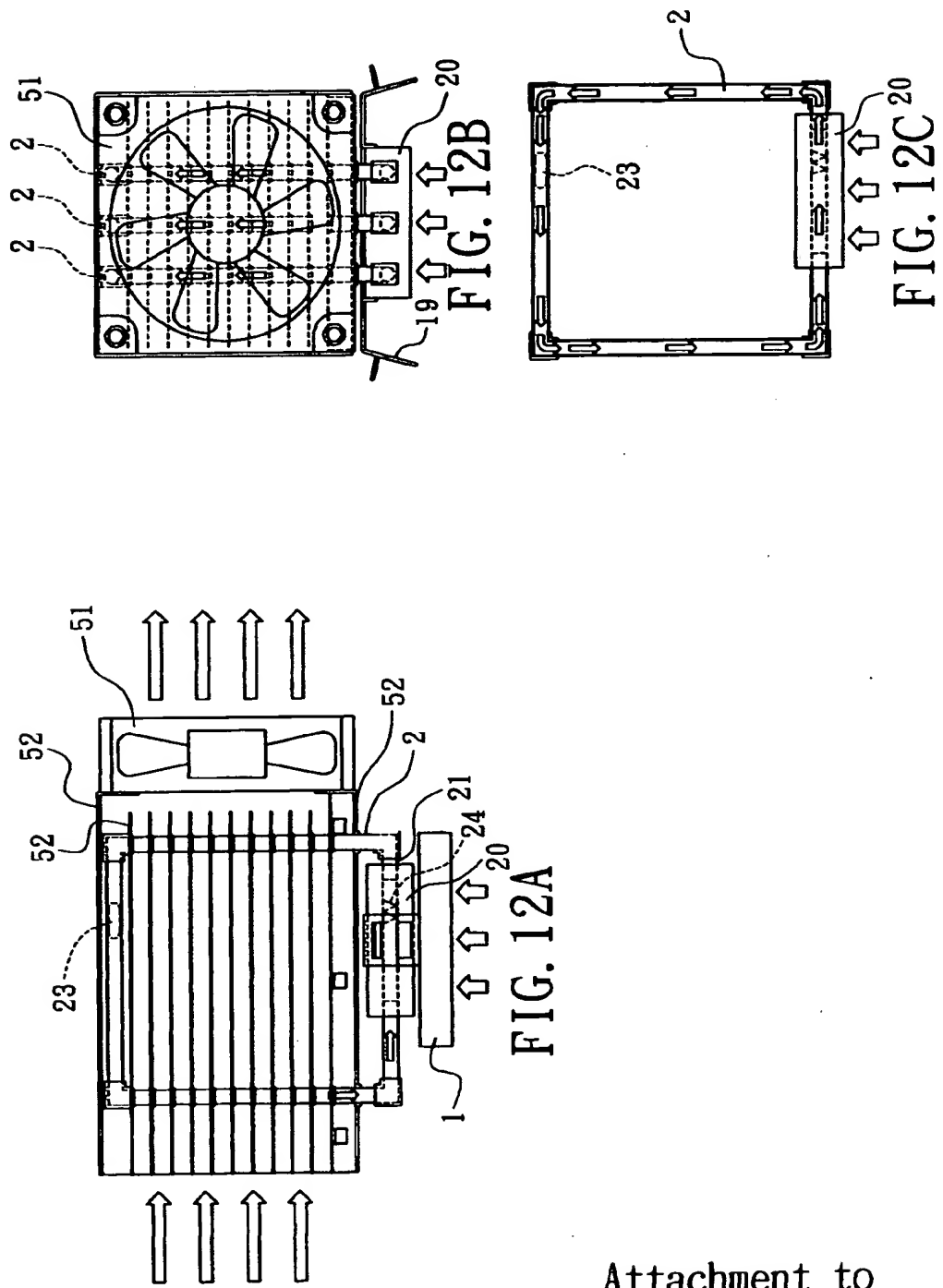
lvc

April 16, 2005

  
LJILJANA V. CIRIC  
PRIMARY EXAMINER  
ART UNIT 3753

Approved.  
LRC  
4-16-05

Replacement Sheet



Attachment to  
Paper No. 050/18